

## **Rapid Assessment of the NTD Pharmaceutical Management System in Cameroon**

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## **About SPS**

The Strengthening Pharmaceutical Systems (SPS) Program strives to build capacity within developing countries to effectively manage all aspects of pharmaceutical systems and services. SPS focuses on improving governance in the pharmaceutical sector, strengthening pharmaceutical management systems and financing mechanisms, containing antimicrobial resistance, and enhancing access to and appropriate use of medicines.

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## ABBREVIATIONS AND ACRONYMS

|        |                                                                                                                                 |
|--------|---------------------------------------------------------------------------------------------------------------------------------|
| APOC   | African Program for Onchocerciasis Control                                                                                      |
| CAPR   | Centre d'Approvisionnement en Médicaments Essentiels et Consommables Médicaux de Région (equivalent to regional medical stores) |
| CBD    | community-based distributor                                                                                                     |
| CENAME | Centrale Nationale d'Approvisionnement en Médicaments Essentiels et Consommables Médicaux (equivalent to Central Medical Store) |
| DPM    | Directorate of Pharmacy Services                                                                                                |
| EML    | Essential Medicines List                                                                                                        |
| GOC    | Government of Cameroon                                                                                                          |
| GSK    | GlaxoSmithKline                                                                                                                 |
| HKI    | Helen Keller International                                                                                                      |
| IEF    | International Eye Foundation                                                                                                    |
| ITI    | International Trachoma Initiative                                                                                               |
| LF     | lymphatic filariasis                                                                                                            |
| LMIS   | Logistics Management Information System                                                                                         |
| MDA    | mass drug administration                                                                                                        |
| MDP    | Mectizan® Donation Program                                                                                                      |
| M&E    | monitoring & evaluation                                                                                                         |
| MIS    | Management Information System                                                                                                   |
| MOE    | Ministry of Education                                                                                                           |
| MOH    | Ministry of Health                                                                                                              |
| MSH    | Management Sciences for Health                                                                                                  |
| NGO    | nongovernmental organization                                                                                                    |
| NTD    | neglected tropical disease                                                                                                      |
| NTDD   | neglected tropical disease drug                                                                                                 |
| PMIS   | Pharmaceutical Management Information System                                                                                    |
| PNLSHI | National Program for the Control of Schistosomiasis and Intestinal Helminthiasis                                                |
| RTI    | Research Triangle International                                                                                                 |
| SOP    | standard operating procedure                                                                                                    |
| SPS    | Strengthening Pharmaceutical Systems                                                                                            |
| STH    | soil-transmitted helminthiasis                                                                                                  |
| USAID  | United States Agency for International Development                                                                              |
| WHO    | World Health Organization                                                                                                       |

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## BACKGROUND

Cameroon, a Central African country with a population of approximately 18 million and an area of 475,650 square kilometers, shares its borders to the west with Nigeria, to the northeast with Chad, to the east with the Central African Republic, and to the south with Equatorial Guinea, Gabon, and the Democratic Republic of Congo. The majority of its population is rural (approximately 57 percent) and young (56 percent under 20 years). The governance structure of the country (2010) includes 10 administrative regions, 58 departments, 289 arrondissements, and 339 territorial communities. It has a 420-kilometer coastal border on the Atlantic Ocean.



**Figure 1. Map of Cameroon**

The health situation of the Cameroonian population is characterized by a high mortality rate estimated at 14.2 per 1,000 populations, attributable in particular to malaria, the leading cause of morbidity affecting children and adults, and followed by diarrhea and acute respiratory infections. In its *Déclaration de Politique Nationale de Lutte contre le Paludisme* (Declaration of National Policy on Malaria Control), the Government of Cameroon (GOC) indicates that malaria accounts for 40 to 50 percent of medical visits, 50 percent of morbidity in children under the age of five, and 35 to 40 percent of all deaths in health facilities. Cases of acute respiratory infection in children under the age of five accounted for 35 percent of visits, and diarrhea 22 percent. Some diseases, such as cholera, measles, and cerebrospinal meningitis, continue to be constant threats to the health of the Cameroonian population. Other diseases, such as HIV/AIDS, TB, and neglected tropical diseases (NTDs)—lymphatic filariasis (LF), schistosomiasis, trachoma, onchocerciasis, and soil-transmitted helminthiasis (STH)—remain endemic in Cameroon, and they typically affect rural and marginal populations, who tend to be poor and lack access to safe water, basic health services, and essential medicines.

The GOC through its Ministry of Health (MOH; Ministère de Santé Publique) seeks to address the scourge of NTDs through the activities of its programs. These programs have been funded through a mixture of government and donor funds.

NTDs, as defined by the World Health Organization (WHO), are a group of 14 parasitic, bacterial, and viral infections that continue to be major public health and economic threats to the developing world. Those affected are often marginalized, forgotten, and left to suffer in silence.

In September 2006, USAID awarded Research Triangle International (RTI) the Neglected Tropical Disease Control Program. The 5-year program is designed to support national NTD control and elimination programs and to integrate and scale up delivery of preventive chemotherapy for the following 5 targeted NTDs: LF (elephantiasis), schistosomiasis (bilharzia; snail fever), trachoma (blinding eye infection), onchocerciasis (river blindness), and STH (intestinal worm infection).

Leveraging the generous donations made by GlaxoSmithKline (GSK), Johnson & Johnson, Merck & Co., Inc., and Pfizer of proven effective treatments for NTDs—albendazole, mebendazole, Mectizan® (ivermectin), and Zithromax® (azithromycin)—the USAID NTD program provides critical funding that allows countries receiving these donated drugs to distribute them effectively and to scale up treatment to full, national scale.

USAID support for NTD control in Cameroon is implemented by RTI through its grantee, Helen Keller International (HKI). HKI has been in Cameroon since 1992; it works in all regions of the country with recent its NTD activities concentrated in the Center, Far North and East regions. The International Eye Foundation (IEF), Sightsavers, and Perspective are HKI sub-grantees that implement NTD programs in the other six regions of Cameroon. HKI provides technical assistance in support of the national NTD program's community-based and school-based mass drug administration (MDA), including support for advocacy, training, social mobilization, and implementation of MDA campaigns. HKI has also supported schistosomiasis mapping in 63 districts and trachoma surveys in 26 districts.

To better understand the supply chain cycle of the NTDs, USAID/Washington requested the Strengthening Pharmaceutical Systems (SPS) Program to conduct a rapid assessment of NTD pharmaceutical management capacity in Cameroon with a view to identifying key strengths and weaknesses and the development of appropriate recommendations toward improving NTD medicine availability.

## **SCOPE OF WORK FOR SPS**

The purpose of the SPS technical assistance scope is to undertake a rapid assessment of the NTD pharmaceutical management system, emphasizing the supply chain component, and also to recommend measures to strengthen the system.

### **Key Objectives**

- Assess current systems and procedures in place for quantification and procurement (including annual application for donated products) of NTD pharmaceuticals
- Assess the capacity and practices of storage, handling, and distribution at all levels of the supply chain
- Assess the community-level drug distribution, tracking, and management system
- Review the existing system and identify options for strengthening Pharmaceutical/Logistics Management Information Systems (PMISs/LMISs) for NTD program products
- Review current systems and procedures for information collection, reporting, analysis, and use
- Assess the management procedures and practices for the disposal of expired, obsolete, or damaged products
- Assess human-resources skill needs for NTD drug (NTDD) supply management and recommend viable options for strengthening weaknesses identified
- Document good practices that need to be strengthened and replicated

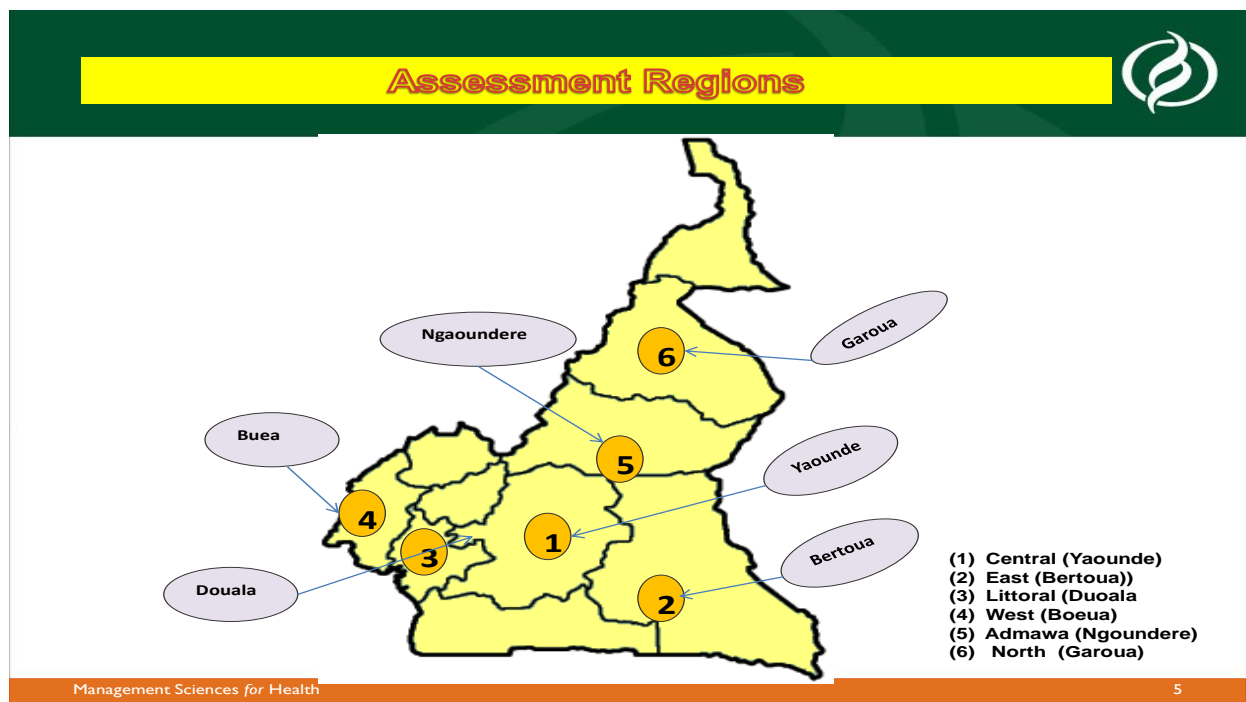
### **Expected Outputs**

- A clear description of distribution and NTD pharmaceutical management system from the central all the way to the community level
- Identification of strengths and weaknesses of the system
- Proposed solutions for strengthening the system with attainable benchmarks for incorporation into future NTD support
- Identification of staff capacity needs to be developed at all levels

## METHODOLOGY

A literature review was conducted for Cameroon's health system. Reports, summaries of activities, and the draft MOH strategic plan for NTDs were reviewed. Desk reviews were conducted for documents related to NTDs and MDAs, including drug management and tracking forms and procedures that are used at all levels of the health system including the MDAs.

Additional qualitative information was collected through a combination of field visits by using questionnaires and unstructured interviews with NTD program managers, health sector policy makers, regional focal persons, technical and funding partners, and community drug distributors. The questionnaires were predominantly qualitative and divided into various categories such as policy, procurement, distribution, storage, MIS, etc. The situation analysis covered the technical areas of the NTD pharmaceutical management cycle with special emphasis on policy/regulations, selection, quantification, procurement, distribution, inventory control, logistics information, and systems including human resources. The assessment did not focus on use of NTDDs in the community. The following health system levels were targeted: central, regional, district, MOH/DPS, and CENAME (Centrale Nationale d'Approvisionnement en Médicaments Essentiels et Consommables Médicaux; equivalent to central medical stores). The map below shows the actual regions visited. The assessment was conducted by a team of four—2 SPS and two MOH staff.



**Figure 2. Regions visited during the NTD assessment**

## INTRODUCTION

Cameroon's MOH is made up of central, intermediate, and peripheral levels. The central level is represented by the Central Administrative Service and the University Hospital Center. The intermediate level is composed of regional delegations and assimilated hospitals. The peripheral level is represented by the district health services, which include the district hospitals and health centers. MOH is split into two major entities: a central administrative entity and an external service entity.

The central administrative entity of MOH includes a General Secretariat, seven departments, and three divisions. The external services include 10 regional delegations, 143 health districts, and 1,689 health facilities that are classified into 7 categories. Other institutions, including the Cameroon Pasteur Center, the University Hospital Center, CAPRs (Centre d'Approvisionnement en Médicaments Essentiels et Consommables Médicaux de Région; the equivalent of regional medical stores), CENAME, and the Laboratoire National de Control de Qualité des Médicaments et de l'Expertise (National Medicine Quality Control and Assessment Laboratory) are classified in the category of "specialized technical bodies."<sup>1</sup>

The Directorate of Disease Control is one of 10 directorates within the central administrative entity of Cameroon's MOH. Cameroon's health policy mandates the Directorate to manage all diseases including NTDs. It has the mandate of ensuring that every person in Cameroon has equal opportunity and access to quality, safe, effective, and affordable pharmaceutical products and medical supplies. Each NTD has a program manager at the central level and a focal person at the regional level that manages and utilizes a network of community-based distributors (CBDs).

The main NTD treatment strategy in Cameroon is preventive chemotherapy involving the periodic mass administration to target populations living in high-prevalence communities, defined as more than 50 percent of inhabitants in the geographical area having the parasite. After this MDA exercise, the programs organized a national evaluation and feedback meeting to review the positives and drawbacks of the MDA.

Broadly, the GOC seeks to implement integrated NTD control programs. This requires using the same distribution/delivery method for multiple NTDDs when the coexistence and prevalence justifies such a strategy. The partners in the program include MOH, United Nations Children's Fund; The Carter Center, IEF, Sightsavers International, Perspective, Lions Club International Foundation, Children Without Worms; Mectizan Donation Program (MDP), and the African Program for Onchocerciasis Control (APOC).

The onchocerciasis program is based under MOH and is coordinated by a program manager. Each region has its own onchocerciasis program office and focal person that reports to the regional delegate (delegate or representative) and the national program manager. At the national level, however, there are two deputies to the director general of disease control in relation to the eye, one for onchocerciasis and another for other blindness (cataract, trachoma, etc.).

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<sup>1</sup> Ministry of Health, stratégie sectorielle 2001-2010, Decree No 2002/209, August 19, 2002.

Mectizan is donated by Merck with logistics support from APOC. The role of the national onchocerciasis program is to ensure that the application is prepared and submitted, reports are compiled for completing the application, and the drugs are received at CENAME and distributed through CAPRs to districts for mass treatment.

The national strategic plan 2005–2010 describes the mandate and strategies for the control of blinding eye diseases, including trachoma. In 2011, onchocerciasis and LF integration started at CBD, program management, and MDP levels.

LF is endemic in Cameroon. Cameroon follows the principal approach of interrupting the transmission of the disease by administering a single-dose treatment of albendazole once a year for 4–6 years. The program is integrated into the onchocerciasis MDA as part of the strategy to increase the effectiveness of the community-based program in Cameroon. A total of 168 districts are mapped for LF. The Far North region is chosen because it has no loa loa infection and, therefore, adverse reaction to Mectizan treatment will be minimal. Sightsavers reports that 18 health districts in the North West are endemic for LF, and 14 health districts are also found to be endemic in the South West region.

The integrated management of LF and onchocerciasis with Mectizan and albendazole is a synergistic strategy for logistics and outcomes.

The national strategic plan 2005–2010 also mandates the control of schistosomiasis and intestinal helminthiasis, with the main objective of rolling back these diseases. The five-year plan targets children of school age for deworming in every region every year.

The National Program for the Control of Schistosomiasis and Intestinal Helminthiasis (PNLSHI) is under MOH. PNLSHI handles the STH program as well.

Mass administration of school-aged children living in high-prevalence communities with Praziquantel was implemented using the decentralized structures of both MOH and the Ministry of Education (MOE). At all decentralized levels, the campaign was coordinated by a management committee including different key stakeholders.

Afterward, PNLSHI organizes a national evaluation and feedback meeting to review the positives and drawbacks of the MDA. The national evaluation program is usually followed by a similar meeting at the regional level.

## **Mass Drug Administration/Community-Based Distribution Approach**

Processes for NTD MDA or campaign include—

- Mapping to determine prevalence and geographic distribution of the NTD by using rapid epidemiological assessment and rapid epidemiological mapping methods are undertaken
- Producing and disseminating health education materials

- Adopting the appropriate treatment strategy for the designated population group based on the prevalence
- Assessing the availability of sufficient resources to continue the treatment program for a minimum of 5 years, such as competent and well-trained staff, transportation, appropriate storage facilities, medical supplies to manage post-treatment effects, etc.
- Mobilizing and advocacy toward partners
- Sensitizing community and schools at all levels
- Training/briefing of central and regional supervisors; school headmasters, teachers, and health staff at the different health districts; and community-based drug distributors in—
  - Registering patients for treatment
  - Identifying patients to be excluded from treatment
  - Determining the correct dose based on weight or height as applicable
  - Assuring that patients swallow the proper dose of the drug
  - Providing adequate standby medical care for adverse drug experiences after treatment
  - Monitoring for and reporting serious adverse experiences
- Registering and treating the target population on the basis of their community or school
- Developing the communication plan in order to mobilize population participation in the MDA/campaign and to obtain the full involvement of administrative, political, religious, and traditional authorities by using various media; communication materials produced include radio and TV, magazines, booklets, etc.
- Monitoring and evaluation of the campaign

The integration of NTDs needs to be reflected in the logistics supply and LMIS tools as well as the program level. In accordance with Cameroon's national strategic plan, USAID funding supports integrated NTD control in all 178 health districts. Under the NTD Control Program, a total of 11,987,563 treatments were administered to 6,048,851 people in the fourth year of program implementation. The program also supported the training of 23,889 health care workers, including MOH staff, trainers, supervisors, and community drug distributors.

## **RAPID ASSESSMENT FINDINGS**

### **Overview of the Pharmaceutical Sector of Cameroon**

With Decree No. 2002/2009 of August 19, 2002, on the organization of MOH, the GOC entrusted the Direction de la Pharmacie et du Médicament (Directorate of Pharmacy Services; DPM) with the full responsibility for regulating pharmaceutical activities in Cameroon. Among other obligations, the DPM is responsible for—

- Establishing, coordinating, and monitoring the implementation of the national policy on the supply of medicines, medical biological reagents, and medical devices, in collaboration with other departments
- Establishing and implementing the legislation, regulations, and standards in the area of pharmaceuticals and biological analysis, in collaboration with the Litigation Division and other departments
- Approving medical biological reagents and medical devices as well as medicines for human use that are imported or manufactured locally
- Coordinating and assessing the activities of pharmaceutical product manufacturing, packaging, storage, and distribution facilities

The DPM has no active role in NTD programming in Cameroon.

The National Pharmaceutical Distribution System (Système national d’approvisionnement en médicaments) functions broadly around the CENAME. The CENAME, established as an individual autonomous parastatal with legal status and financial autonomy some 12 years ago, is a key element in the implementation of the national pharmaceutical policy to ensure the availability and accessibility of drugs and basic medical supplies throughout Cameroon.

CENAME is run by a managing director and overseen by a 12-member board of directors composed of, among others, representatives of MOH, the Ministry of Finance, CAPRs, the institution itself, and civil society and other users. CENAME’s total staff has grown from 48 in 2005 to 70 in 2008. From an original area of 3,500 square meters, the CENAME facilities currently cover a total of 8,004 square meters. This space includes the Yaoundé warehouses with 6,604 square meters, including the central warehouses, administrative offices, and three transit points/warehouses at the Yaounde train station, and 1,400 square meters at the Ngaoundéré warehouses in the northern part of the country. CENAME has a total of 17 warehouses, 2 of which are currently undergoing reconstruction.

Even though CENAME is said to be autonomous, some of its operating resources are provided by subsidies and contributions from the government. Its start-up capital, however, was provided for a one-period resource allocation by development partners. In practice, recurrent costs are recovered mostly from the sale of the products and income from the provision of services.

The mission of CENAME is, among others: (a) to ensure the availability and accessibility of essential medical devices and medicines in the country; (b) to guarantee the quality of the essential medical devices and medicines that it distributes in accordance with quality standards; and (c) to supply the CAPRs with essential medical devices and medicines at the best quality/price ratio. In addition to its own assets, CENAME manages the products of the public health programs, almost all of which are subsidized.

The institutional capacity of CENAME with regard to procurement, inventory management, and distribution of medicines and medical supplies is adequate to support quality services in the health facilities.

Approximately 52 percent of CENAME sales are to CAPRs. To improve access of essential drugs to the public at an affordable price, CENAME supplies about 30 types of drugs to the private pharmacies through private distributors. CENAME practices direct delivery of its products to CAPRs and select health facilities (central and general hospitals and non-profit health facilities) with its fleet of vehicles.

CENAME also plays an important role in management (procurement, storage, and distribution) of products for public health programs, such as antiretrovirals, antimalarials, Ivermectin for onchocerciasis, and reagents for HIV and TB testing.

The CENAME branch at Ngoundere provides services to the three northern regions. There is a plan presently being reviewed at the government level to absorb all the CAPRs to serve as branches of CENAME. The CENAME stores, distributes, and performs quality control tests on procured products for a management fee equivalent to 15 percent of invoice value. This income covers the costs of statutory government payments such duties, demurrage, and the like at entry ports (7 percent) and storage, distribution, quality testing, staff time, and day-to-day management (8 percent).<sup>2</sup> However, MOH, in consultation with public health programs, can request or negotiate discounts on the fees charged by CENAME; for example, the national cancer program and the Global Fund to Fight AIDS, Tuberculosis and Malaria pay a 10 percent management fee. In some other instances, a program will still pay the 15 percent, but 10 percent of invoice goes to CENAME and 5 percent to the CAPRs for regional distribution at no additional cost to the program.

The regional medical stores (CAPRs), however, have a mandate that allows them to resell other health commodities and essential medicines to the lower-level health facilities at a margin. The CAPRs play a strategic role as redistributors of over 95 percent of the products procured by CENAME.

## **Stakeholders Perception of CENAME**

CENAME's involvement in managing public health programs is a positive one. However, there are complaints from public health program managers about lack of information sharing by CENAME on stock level and other product-related data. The MIS system at CENAME is

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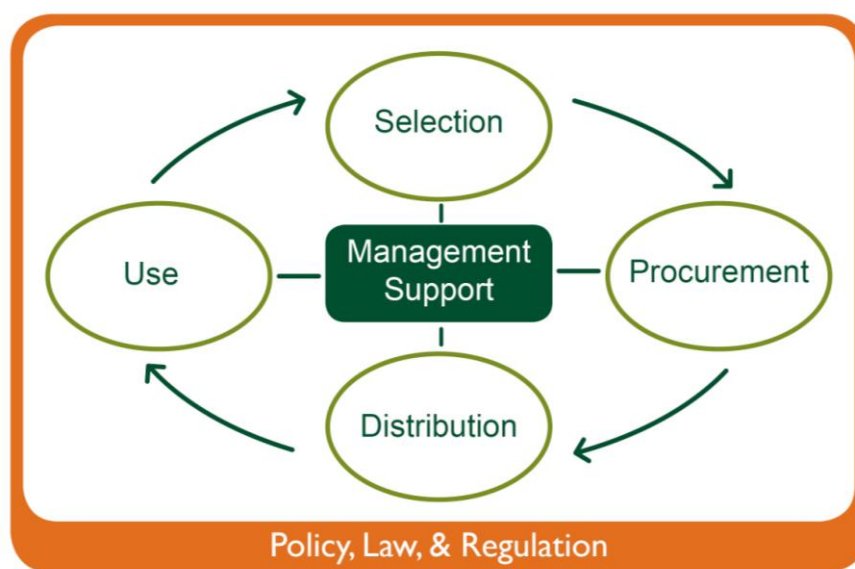
<sup>2</sup> Interview with Dr. Ousomanne and Dr. Souaibou of CENAME.

satisfactory; every product is tracked by receipt, sale, balance, expiry, etc. There are standard forms for proformas that allow clients to know the specifications of products and their prices. There are, however, frequent complaints from CAPRs about CENAME's inability to meet their demands. During the assessment, three out of the five CAPRs visited indicated that the percentage of products supplied from CENAME did not exceed 50 percent of orders. This leaves these CAPRs with no alternative to meet the drug needs of the health facilities.

With the exception of azithromycin, which was undergoing registration at the time of the assessment, all the drugs for NTDs are registered and included in the national medicines list. All the NTDDs are produced outside Cameroon, except mebendazole.

## PHARMACEUTICAL MANAGEMENT OF NTDS IN CAMEROON

One of the major objectives of Cameroon's health policy is to guarantee the availability of medicines necessary to provide services and the medicines' accessibility to the population. The availability and accessibility of medicines are the result of the proper operation of the key pharmaceutical management functions of selection, procurement, distribution, and use with the appropriate policy and regulatory environment (figure 3). The focus of this situational analysis did not include assessment of the use of NTD medications.



Source: Center for Pharmaceutical Management. 2011. *Center for Pharmaceutical Management: Technical Frameworks, Approaches, and Results*. Arlington, VA: Management Sciences for Health.

**Figure 3. Pharmaceutical management cycle**

### Policy, Law, and Regulations

Regarding registration, Praziquantel, albendazole, mebendazole, and Mectizan are all registered with the DPM of Cameroon.

Use of Zithromax for mass treatment was started in 2011. Although it is available for MDA, it is not yet registered. At the time of the visit, an expedited application for registration had been submitted and was expected to be approved shortly. Except for azithromycin, the other NTDs are all included in the essential medicines list (EML). Azithromycin will be included in the yet to be approved, updated EML.

## Selection

WHO and the global NTD partners have recommended treatment protocols for NTDs. The team observed that all in-country programs adhered to the recommended global treatment protocols. The trachoma program, however, had included the use of tetracycline ointment for babies less than six months of age.

## Procurement

Cameroon obtains NTD medications from three sources for its annual MDAs—the Global Pharma Donation Program, USAID, and GOC.

**Table 1. Sources of NTD Medications**

| Disease/product source | Global Pharma Donation Program | USAID        | GOC          |
|------------------------|--------------------------------|--------------|--------------|
| Onchocerciasis         | Mectizan                       | -            | -            |
| LF                     | Mectizan, albendazole          | Albendazole  | Albendazole  |
| Trachoma               | Zithromax                      | -            | Tetracycline |
| STH                    | Mebendazole                    | -            | Mebendazole  |
| Schistosomiasis        | Praziquantel                   | Praziquantel | Praziquantel |

Mectizan is donated by Merck with logistics support from APOC. The process of determining the target area, population to be treated, and quantity of Mectizan to be procured starts with a mapping exercise based on specified diagnostic markers, such as nodule count, skin snip microscopy, blindness rate due to onchocerciasis, etc. The quantity requested from the MDP is estimated on the basis of the number of people being treated that meet standard prevalence criteria.

The role of the national onchocerciasis program is to ensure that the application is prepared every October and sent to the MOH Directorate of Disease Control. MOH signs and submits for review by MDP. The application requires comprehensive information about epidemiology, number of persons to be treated, program management, drug management, information system, reporting, clearance, storage, and consignee information. Once approved, MDP ships the product to MOH. WHO/APOC provides logistics support in clearing the donation and ensuring the drugs are received at CENAME and distributed through CAPRs to districts for mass treatment.

A similar process has been adopted for LF in collaboration with WHO and HKI. Albendazole for LF is donated by GSK and the donation is managed by MDP.

For trachoma, the process of determining the target area/population to be treated starts with a mapping exercise based on specified diagnostic markers, such as eye lid examination and prevalence of blinding trachoma. The quantity of Zithromax requested from the International Trachoma Initiative (ITI) Donation Program is estimated on the basis of the number of people being treated that meet standard prevalence criteria. An application form provided by ITI's

technical evaluation committee is completed by MOH's blindness control program, signed, and submitted for review by ITI's technical evaluation committee. WHO provides logistics support in clearing the donation. The GOC granted a waiver on duties and taxes at the port for this first quantity of Zithromax. It is very important that MOH secures all the exemption documents from the government in a timely manner to avoid the delays that occurred in 2011.

A National Trachoma Task Force has been established in Cameroon. Trachoma is endemic in the Northern regions. Currently, only three regions have been identified as endemic (>10 percent infected) and therefore qualify for trachoma mass treatment. Mapping is done in collaboration with RTI/HKI. Inflammatory trachoma is documented in 13 of 26 districts. Plans are underway to complete mapping of the Northern and Far North Regions of Cameroon for trachoma before the end of 2011. The target for treatment is 975,000 persons (out of a total population of 1.5 million in the Northern regions). Zithromax was donated by Pfizer, and distribution started in August 2011 in eight districts in Cameroon.

ITI is supporting Cameroon in its effort to achieve the elimination of trachoma by 2020.

In 2011, a total of 2,285,280 tablets of Zithromax were sent to the CAPR in the north. Review of distribution figures at the CAPR confirmed receipt of the stock. At the time of the visit, all returns had not been received. The dosage administered varies by height of the person and ranges from 1 to 4 tablets. Infants from 6 months to 5 years receive azithromycin suspension. Children under 6 months of age are treated for trachoma with tetracycline eye ointment (not with Zithromax). Zithromax is not distributed through CENAME or CAPR, but managed separately by the focal persons and HKI.

The country had adequate stocks of Praziquantel for the 2011 and 2012 MDAs. The Praziquantel stock status assessment conducted March 10–19, 2011, in five regions of Cameroon indicated that the schistosomiasis program was not over stocked with Praziquantel.

## DISTRIBUTION OF NTDDS IN CAMEROON

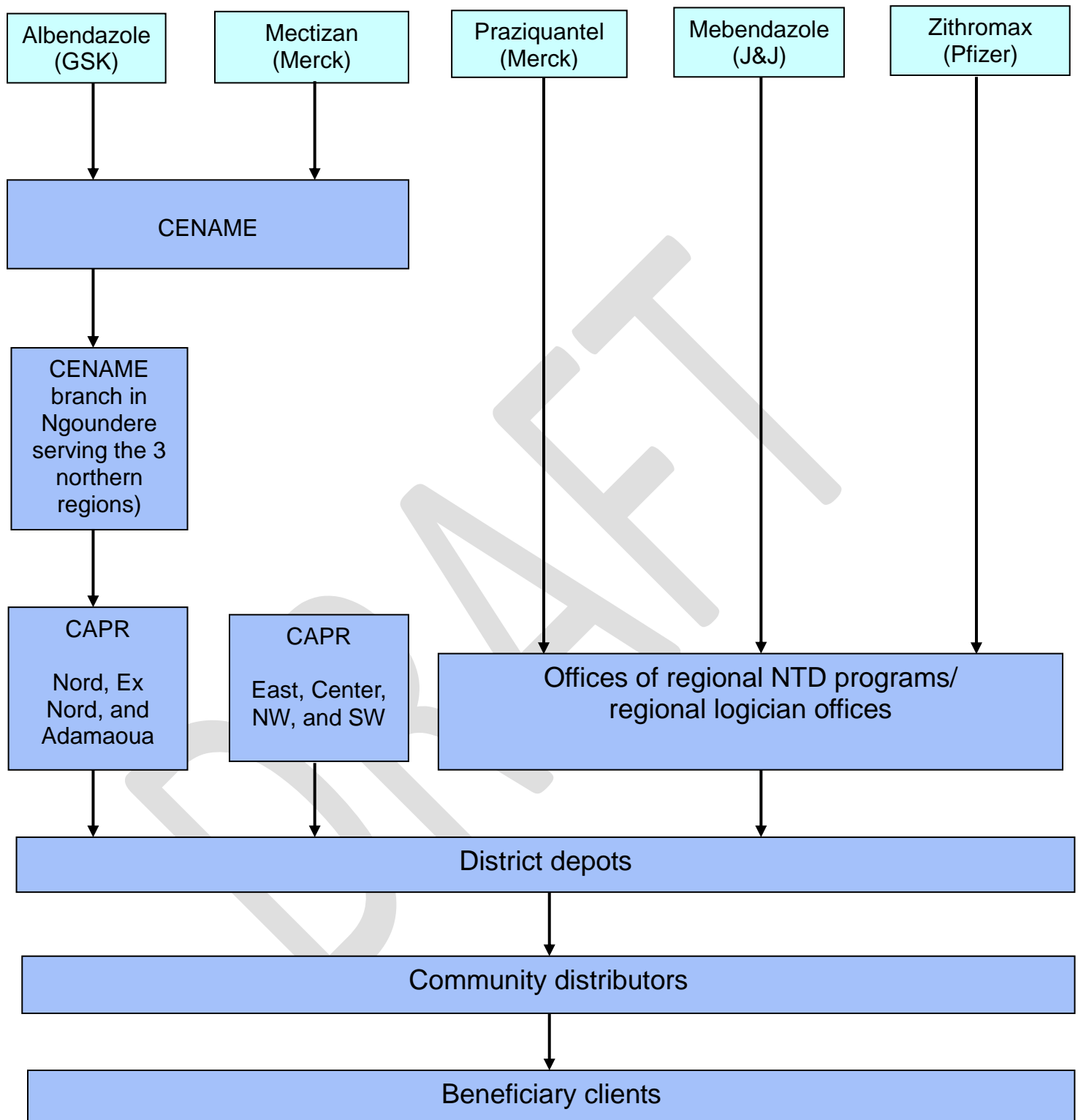
Good storage and distribution management are critical functions that ensure that products are stored in appropriate conditions and are delivered in a timely manner to all sites.

At present, only Mectizan and albendazole are stored and distributed by CENAME and CAPRs. Praziquantel, mebendazole, and Zithromax are received by MOH through WHO, and stored in transit by the respective program unit of the Ministry. The medicines are sent to the regions/districts according to the approved plan for MDA. In all six stores visited, there were no NTDDs received with less than six months of shelf life.

The onchocerciasis program appeared better organized in terms of storage and distribution. Observations at the sites revealed that good storage practices were being adhered to, first expiry, first out was in operation, and products were well stacked. In four of the six CAPRs visited, physical stocks of available Mectizan and albendazole figures agreed with the electronic data at CAPRS. At CENAME, the physical stock of Mectizan and albendazole agreed with the stock cards and the electronic data. Stock received, stock issued, and closing stock data were readily accessible and verifiable. Of the three products shipped by CENAME and in CAPRs visited, all the available products had stock cards indicating quantity received, amount issued, and quantity returned.

We did not observe such a system in the trachoma program as they had just embarked on their first MDA in September and were not stocking Zithromax with CENAME. With the support of HKI, the trachoma program ships Zithromax from the center immediately to the region, once WHO clears it from the port of arrival. No stocks or stock records could be found at the center and usage figures from the regions were being compiled. The program manager indicated that these systems were now being set up by the program. As part of technical assistance, the team advised on the structure and format of the LMIS reporting tools; the proposed tools will be in line with the HKI format reviewed earlier.

Figure 4 below shows the distribution of various NTDDs from the center to the beneficiaries. The trachoma, schistosomiasis, and STH programs still have vertical supply systems that use the national distribution system only at the lower levels.



**Figure 4. NTD medicines distribution system in Cameroon**

It is obvious that the national programs offices and the logician offices at the delegate do not have proper storage and inventory management systems which are prerequisites for the appropriate management of pharmaceuticals.

No stocks of Praziquantel were available at the program office and it appears they had all been shipped to regions. At the regional offices, especially in Bertoua and Garroua, the Praziquantel was still kept at the logistics section of the delegate's office instead of the CAPRs as recommended during the earlier Praziquantel stock status assessment exercise.

It is recommended that the national NTD program recruit staff with some knowledge of pharmaceutical management or provide training to existing staff on pharmaceutical management principles. Because CENAME and CAPR have experience in handling other NTDDs, it would be advisable that all NTD medicines be integrated into the national drug supply management system in line with the best practices of integrated NTDD management at the supply level. The integration of NTDDs needs to be reflected in the logistics, supply, and LMIS levels as well.

### **Community Distribution of NTDDs**

MDA is conducted by CBDs who receive the quantity determined for their community from the district. Mectizan comes in bottles of 500 tablets. The CBDs give out the required doses by counting the tablets from the bottles. At the end of the MDA, CBDs are required to calculate what has been given out to patients, the quantity lost or damaged, and the quantity remaining. The quantity remaining is given back to the district with the report. The CBDs are paid 25 CFA (2010 reported figure) per treatment provided by the program. The campaign for community-based distribution of Mectizan usually is planned for February–April every year.

Nongovernmental organizations (NGOs; KHI, Sightsavers, etc.) provide technical and financial assistance to implement community-level work and coordination. HKI works with several partners in MDA of Mectizan. HKI has developed tools for documenting treatment, stock status, and adverse effects. A total of 179 districts are mapped for intervention for onchocerciasis; USAID supports 132 health districts out of 179 for MDA of Mectizan. The tool developed for onchocerciasis is also being used for the management of the other NTDs.

The trachoma program just started and presents an opportunity for the implementation of best storage, distributions, and LMIS.

### **Management Support for NTD Pharmaceutical Systems**

NTD programs fall under the Directorate of Disease Control within MOH. There is no unit or point person that coordinates the different NTDs; hence individual NTD programs report directly to the Director General. At the regional level, program managers report to the regional delegate; there is no harmonization of the NTDs, although there is potential for harmonization and integration of campaigns as the community distributors are usually the same people doing the

work. There is no joint meeting between the different NTD managers to coordinate their work and harmonize their reporting.

USAID has funded HKI through RTI to manage its NTD assistance program in Cameroon. HKI has sub-partners that it works with within the different regions. Each partner has a catchment area for its assistance. The partners under HKI include Sightsavers, IEF, and Perspective. Carter Center, although not funded by HKI, works on onchocerciasis and trachoma in selected areas.

The donated NTDDs are usually packed/labeled differently and used only for mass treatment programs. Persons who miss the mass treatment have about a month to come and get their treatment. There is no passive treatment using donated drugs.

Passive treatment for schistosomiasis and helminthiasis is provided with Praziquantel, albendazole, and mebendazole as routine medical care by facilities with drugs procured from CENAME.

HKI has developed an elaborate tool/manual to support the tracking of consumption of NTDs and improve reporting. But this has not been implemented yet. The tool will assist and serve as the medication register and support inventory management and reporting for onchocerciasis, trachoma, LF, intestinal worms, and schistosomiasis. HKI is currently working with the partners involved in onchocerciasis and LF as well as other NTD programs for a consensus on the use of this uniform NTD MIS.

The SPS team worked with the HKI NTD office to review and offer comments on the draft tool/manual. The manual contains—

- A section with each NTD, drug for each NTD, and the target group by age
- A section on how the medicines are administered (dosage)
- A section on side effects and their management
- A section on how to use the register
- Forms used to register a patient's name, sex, age, height, and dose for each NTDD
- A community distributor reporting form for the number of persons
  - Registered broken down by sex and age
  - Treated broken down by sex and age
  - Who refused and missed treatment broken down by sex and age
- An inventory control section that details the number of drugs received, distributed, lost, and remaining on hand
- A section on persons who manifested complications by type of complication for each NTD

One challenge mentioned in the area of information systems is the delay in getting the above information after MDAs. A roll out of these forms to all community drug distributors and MDA programs will assist in gathering this information.

## **Reporting and Evaluation Approaches for MDA Activities**

Each community that undertakes an MDA is required to report the number of persons treated broken down by age and sex. There is a register provided, and community distributors are trained in measuring height, registration, administering the drug according to the height, monitoring adverse drug reactions, etc. At the end of the mass distribution a national review/evaluation is conducted, mostly in September. Supervision is conducted by the region in collaboration with NGOs. The storage of Mectizan is integrated with other drugs at the CAPR level. Health districts request Mectizan from the CAPR after getting an approved requisition from the regional program managers. There is no integrated national NTD strategy and implementation plan; a draft document has been developed and has yet to be finalized.

The team had meetings with the national onchocerciasis manager at MOH in Yaounde. The office is staffed by the manager, an assistant, and a monitoring & evaluation (M&E) officer. The office is crowded and documents are not well organized. The office also administers Mectizan for patients referred from health facilities. A register is maintained for such distribution. Although there is an annual report prepared, the team was unable to see one. The role of the office is to make sure that the Mectizan application is completed and submitted on time, provide technical assistance, etc. The team saw Mectizan tablets in bottles returned from the MDA. There is no guarantee that these returned products are safe and effective as they might have been exposed to air, humidity, and unsanitary handling. Their use in the next campaign may not be recommendable.

Because mass distribution by CBDs is not well controlled and managing tablets from a bottle of 500 will not ensure sanitary conditions, it would be appropriate, if possible, for the manufacturer/donor to provide Mectizan in foils that can easily be cut and given to the patient. The unused tablets will still be left safe in their original foils. The integration of Mectizan into the LF program with albendazole is a positive step that will ease logistics and treatment challenges. The other potential integration program will be trachoma treatment. This could be easily managed because the distributors can be used for the MDA.

The long years of experience in onchocerciasis MDA is a good management model that can be adopted for other NTDs in terms of storage and distribution by CENAME and CAPR, proper reporting, and registration.

## RECOMMENDATIONS

| Area                                          | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | What it will achieve                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Policy and regulations                        | <ul style="list-style-type: none"> <li>Ensure that the registration status of all NTD products are duly updated and captured in the updated EML</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Ensure compliance with good pharmaceutical management practices</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Procurement                                   | <ul style="list-style-type: none"> <li>Integrate/coordinate procurement of all donated NTD products under the Directorate of Disease Control once it's established</li> <li>Develop a schedule/calendar for procurement of NTD donations and MDAs (report compilation, application preparation, submission, and follow-up)</li> <li>Establish a unit/point person within CENAME that coordinates all NTD supply management, provides information, and liaises with NTD unit of MOH</li> <li>Ensure availability of non-donor provided NTDDs, such as tetracycline eye ointment, which is presently included in the trachoma treatment regimen</li> </ul>                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Avoids duplication of effort, saves resources, centralizes information and ensures accountability.</li> <li>Ensure dates for submission of reports, applications, MDAs, and review meetings</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Storage/distribution and logistics management | <ul style="list-style-type: none"> <li>Integrate logistics of all NTDDs (clearing, storage, distribution, stock inventory, etc.) under CENAME</li> <li>Integrate information of NTDDs (order, shipment, receipt, distribution, pipeline, stock status, expiry, etc.) under CENAME and CAPRs</li> <li>Ensure integrated information is shared regularly and in a timely manner with the NTD unit of MOH and with each program management unit</li> <li>Stop dispensing of NTDDs from the program management office and transfer such responsibility of passive treatment (if appropriate) to hospitals; hospitals must use registers and report to the NTD program directly</li> <li>Stop storage of NTDDs at NTD program offices and move all stock to CENAME or CAPRs</li> <li>Central and regional levels to facilitate transfer of unused/overstocked NTDDs from region to region or facility to facility</li> <li>Develop an SOP for the return, reuse, and/or disposal of damaged/expired NTDDs</li> </ul> | <ul style="list-style-type: none"> <li>Logistics functions will be owned by MOH/CENAME, capacity will be built, stock management and distribution can be better planned and communicated</li> <li>Comprehensive and accurate data and information will be available for planning and quantification to ensure good forecasting</li> <li>Health facilities need to manage (passive) NTD cases in the event patients are suffering</li> <li>Storage of NTDDs (Praziquantel) at program manager's office must stop and all medicines must be stored at CENAME/CAPR before MDAs; returned drugs must also be stored at CENAME/CAPR</li> <li>Overstock results in under use and expiry; places with shortages can make better use</li> <li>Lack of uniformity in program implementation can be avoided with SOPs</li> </ul> |

| Area                         | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | What it will achieve                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NTD MIS/reporting            | <ul style="list-style-type: none"> <li>Establish a dynamic database of NTD treatment and drug use at MOH NTD unit and also ensure availability of such data at CENAME</li> <li>Adopt a comprehensive, standardized NTD MIS including MDA register, aggregation form, reporting form for all NTDs</li> <li>Create a data hub for regional and central NTD activities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Availability of information at one place at the central level and regions will ensure better planning, comprehensive and consistent performance reports, and make applications for donations easier</li> <li>HKI has created a comprehensive database system that can be standardized and used for all NTDs; will ensure that MIS is formalized at MOH level and uniformly used by all partners/NGOs</li> <li>Will avoid going to different partners or program management offices to look for data</li> </ul>                                                                                                                                                                                                                                 |
| M&E/quality assurance        | <ul style="list-style-type: none"> <li>Ensure data quality at all levels</li> <li>Conduct post-MDA pharmaceutical management review at regional and central levels</li> <li>Advocate for the receipt/use of foil-packed NTDDs (such as Mectizan in foils rather than a bottle of 500 tablets)</li> <li>Ensure that adverse drug reaction information is communicated to the pharmacovigilance unit of the Directorate of Pharmacy and Medicines</li> <li>Have partners/NGOs provide technical assistance to NTD unit at central, regional, and CENAME levels</li> </ul>                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Data needs to be validated and consistent data made available for good planning</li> <li>Current review process at the central level can be replicated at all levels so that all concerned stakeholders review the success and constraints in MDA planning and execution</li> <li>DPM will be given the mandate for pharmacovigilance for all medicines; data from NTDs must be shared with DPM and others for consolidation</li> <li>Lack of budget may delay creation of NTD units at the different levels; if partners second or fund such positions, it will support the MOH</li> </ul>                                                                                                                                                    |
| Coordination and integration | <ul style="list-style-type: none"> <li>Establish and assign a head for NTD unit within the Directorate of Disease Control</li> <li>Institute an annual review, joint best practice/experience sharing meeting for all NGOs, partners, and staff from center and regions (similar to the vertical program annual meetings)</li> <li>Develop one integrated, comprehensive road map for NTDs</li> <li>Adopt an SOP/manual for all NTDs</li> <li>Integrate all eye-related NTDs (onchocerciasis and trachoma) under the same unit</li> <li>Integrate all NTD logistics (procurement, storage, warehousing and LMIS) in CENAME</li> <li>Create an NTD technical committee at central level that meets biannually (suggested members: Directorate of Disease Control, its NTD unit, the different program managers of the</li> </ul> | <ul style="list-style-type: none"> <li>Will ensure better integration and coordination of the current vertical approach and improve one-stop planning</li> <li>Having a point person will improve efficiency, clarity of information, and integration; joint meetings will help improve performance and avoid duplication and recreating the wheel</li> <li>Donors and implementers will have the same approach and avoid different models being implemented in different regions for the same NTDs</li> <li>Because trachoma and onchocerciasis are blinding diseases, the NTD can be better organized if put under the same unit</li> <li>Vertical procurement; storage and distribution wastes resources; integration will improve better planning and avoid stock outs</li> </ul> |

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*Recommendations*

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| Area | Recommendation                                                       | What it will achieve                                                                                                                                                                                                                                                                       |
|------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | individual NTDs, partners, NGOs and others with the expertise, etc.) | <ul style="list-style-type: none"><li>• APOC success in providing technical assistance and joint planning for onchocerciasis has improved efficiency, leveraged resources, and instilled technical soundness in treatment and management; same approach can be used for all NTDs</li></ul> |

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## ANNEX 1. CAMEROON NTD PROGRAM MAPPING

| NTD             | Product                  | Product donor           | Responsible office at MOH                                             | Partner NGO/ target region and population                                                                                                                                                                                                 |
|-----------------|--------------------------|-------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Onchocerciasis  | Mectizan                 | Merck/MDP               | Onchocerciasis program manager                                        | <ul style="list-style-type: none"> <li>• HKI: North, East and Center North, West</li> <li>• Carter Center: Center</li> <li>• IEF: Adamawa, South</li> <li>• Sightsavers: South West and North</li> <li>• Perspective: Littoral</li> </ul> |
| LF              | Mectizan and albendazole | Merck (USA) and SKB/MDP | MOH                                                                   | HKI: North, East, and Center                                                                                                                                                                                                              |
| Schistosomiasis | Praziquantel             | Merck KGaA (Germany)    | PNLSHI/MOH/MOE                                                        | HKI: North, East, and Center                                                                                                                                                                                                              |
| STH             | Mebendazole              | Johnson & Johnson/WHO   | PNLSHI/MOH/MOE                                                        | HKI: National                                                                                                                                                                                                                             |
| Trachoma        | Zithromax                | Pfizer/ITI              | National Program for the Prevention of Blindness and Trachoma Control | HKI: North                                                                                                                                                                                                                                |

## ANNEX 2. FORMAT FOR NTDD MANAGEMENT INFORMATION SYSTEM

| <b>Disease</b>                          | <b>Oncho.</b>   | <b>LF</b>                         | <b>Schisto.</b>     | <b>STH</b>         | <b>Trachoma</b>  |
|-----------------------------------------|-----------------|-----------------------------------|---------------------|--------------------|------------------|
| <b>Drug</b>                             | <b>Mectizan</b> | <b>Mectizan +<br/>albendazole</b> | <b>Praziquantel</b> | <b>Mebendazole</b> | <b>Zithromax</b> |
| Source of drug/donation                 |                 |                                   |                     |                    |                  |
| Year program started                    |                 |                                   |                     |                    |                  |
| Who quantifies how much to order?       |                 |                                   |                     |                    |                  |
| What method is used for quantification? |                 |                                   |                     |                    |                  |
| Who initiates donation application?     |                 |                                   |                     |                    |                  |
| What is the application anniversary?    |                 |                                   |                     |                    |                  |
| Who follows up donation application?    |                 |                                   |                     |                    |                  |
| Target regions                          |                 |                                   |                     |                    |                  |
| Number of districts targeted            |                 |                                   |                     |                    |                  |
| Consigned to                            |                 |                                   |                     |                    |                  |
| Cleared by                              |                 |                                   |                     |                    |                  |
| Clearance cost borne by                 |                 |                                   |                     |                    |                  |
| Transported by                          |                 |                                   |                     |                    |                  |
| Stored at/by                            |                 |                                   |                     |                    |                  |
| Distributed by                          |                 |                                   |                     |                    |                  |
| Treatment threshold/cut-off             |                 |                                   |                     |                    |                  |
| MDA method                              |                 |                                   |                     |                    |                  |
| Frequency of distribution               |                 |                                   |                     |                    |                  |
| Partners                                |                 |                                   |                     |                    |                  |
| Role of partners                        |                 |                                   |                     |                    |                  |
| Who prepares post-MDA report?           |                 |                                   |                     |                    |                  |
| Number of doses administered            |                 |                                   |                     |                    |                  |
| Number of patients treated              |                 |                                   |                     |                    |                  |
| Eligible population                     |                 |                                   |                     |                    |                  |
| Coverage (%)                            |                 |                                   |                     |                    |                  |
| Stock-on-hand (qty)                     |                 |                                   |                     |                    |                  |
| Stock expired (qty)                     |                 |                                   |                     |                    |                  |
| Loss (qty)                              |                 |                                   |                     |                    |                  |
| Qty received in 2010                    |                 |                                   |                     |                    |                  |

| <b>Disease</b>                         | <b>Oncho.</b>   | <b>LF</b>                         | <b>Schisto.</b>     | <b>STH</b>         | <b>Trachoma</b>  |
|----------------------------------------|-----------------|-----------------------------------|---------------------|--------------------|------------------|
| <b>Drug</b>                            | <b>Mectizan</b> | <b>Mectizan +<br/>albendazole</b> | <b>Praziquantel</b> | <b>Mebendazole</b> | <b>Zithromax</b> |
| Qty received in 2011                   |                 |                                   |                     |                    |                  |
| Qty expected to be<br>received in 2011 |                 |                                   |                     |                    |                  |
| Out of stock of drug<br>(qty)          |                 |                                   |                     |                    |                  |

### ANNEX 3. COLLABORATORS AND PARTNERS

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| Julie Akame                      | NTD Officer, HKI                                        |                         |               |
| Dr. Hamdiko<br>Harouna           | Regional Delegate Adamoua                               |                         |               |
| Dr. Souaibou                     | Director of Operations<br>CENAME                        |                         |               |